

National Institute
of Standards and Technology



National Voluntary
Laboratory Accreditation Program

ISO/IEC 17025:1999
ISO 9002:1994

Scope of Accreditation



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CALIBRATION LABORATORIES

NVLAP LAB CODE 105013-0

HENRY TROEMNER, LLC

201 Wolf Drive
P.O. Box 87
Thorofare, NJ 08086-0087
Mr. Wilbert D. Abele
Phone: 856-686-1600 Fax: 856-686-1601
E-Mail: wabele@troemner.com
URL: <http://www.troemner.com>

NVLAP Code: 20/A01

ANSI/NCSL Z540-1-1994; Part 1

Compliant

MECHANICAL

NVLAP Code: 20/M08

Mass

Range	Best Uncertainty (\pm) ^{notes 1,2}	Remarks
30 kg	10.0 mg	Echelon I
20 kg	4.0 mg	Echelon I
10 kg	0.7 mg	Echelon I
5 kg	0.3 mg	Echelon I
3 kg	0.19 mg	Echelon I
2 kg	0.14 mg	Echelon I
1 kg	0.05 mg	Echelon I
500 g	0.05 mg	Echelon I

September 30, 2005

A handwritten signature in black ink, appearing to read "W. R. Mull".

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HENRY TROEMNER, LLC

300 g	0.04 mg	Echelon I
200 g	0.033 mg	Echelon I
100 g	0.017 mg	Echelon I
50 g	0.010 mg	Echelon I
30 g	0.006 mg	Echelon I
20 g	0.005 mg	Echelon I
10 g	0.004 mg	Echelon I
5 g	0.002 mg	Echelon I
3 g	0.002 mg	Echelon I
2 g	0.0015 mg	Echelon I
1 g	0.0015 mg	Echelon I
500 mg	0.0006 mg	Echelon I
300 mg	0.0006 mg	Echelon I
200 mg	0.0006 mg	Echelon I
100 mg	0.0006 mg	Echelon I
50 mg	0.0006 mg	Echelon I
30 mg	0.0006 mg	Echelon I

September 30, 2005

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HENRY TROEMNER, LLC

20 mg	0.0006 mg	Echelon I
10 mg	0.0006 mg	Echelon I
5 mg	0.0006 mg	Echelon I
3 mg	0.0006 mg	Echelon I
2 mg	0.0006 mg	Echelon I
1 mg	0.0006 mg	Echelon I
1000 kg	10.34 g	Echelon III
500 kg	5.03 g	Echelon III
200 kg	3.26 g	Echelon III
100 kg	1.64 g	Echelon III
50 kg	0.087 g	Echelon III
30 kg	0.072 g	Echelon III
25 kg	0.066 g	Echelon III
20 kg	0.057 g	Echelon III
10 kg	0.024 g	Echelon III
5 kg	18.30 mg	Echelon III
3 kg	16.77 mg	Echelon III

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A handwritten signature in black ink, appearing to read "William R. Moulton".

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HENRY TROEMNER, LLC

2 kg	11.52 mg	Echelon III
1 kg	10.09 mg	Echelon III
500 g	10.02 mg	Echelon III
300 g	10.01 mg	Echelon III
3000 lb	16.791 g	Echelon III
2500 lb	13.551 g	Echelon III
2000 lb	10.312 g	Echelon III
1000 lb	5.178 g	Echelon III
500 lb	3.841 g	Echelon III
100 lb	0.088 g	Echelon III
50 lb	0.054 g	Echelon III
30 lb	0.046 g	Echelon III
25 lb	0.035 g	Echelon III
20 lb	0.029 g	Echelon III
10 lb	0.018 g	Echelon III
5 lb	10.572 mg	Echelon III
3 lb	10.127 mg	Echelon III

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HENRY TROEMNER, LLC

2 lb	10.093 mg	Echelon III
1 lb	10.019 mg	Echelon III
0.5 lb	10.005 mg	Echelon III

Magnetic Susceptibility (χ) of mass standards or materials used to manufacture mass standards.

Mass Range	Best Uncertainty (\pm) in $\chi^{notes\ 1,2}$	Remarks
10 kg	0.000464	
5 kg	0.000375	
3 kg	0.000339	
2 kg	0.000316	
1 kg	0.000349	
500 g	0.000438	
300 g	0.000488	
200 g	0.000515	
100 g	0.000567	
50 g	0.000628	
30 g	0.000654	

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HENRY TROEMNER, LLC

20 g	0.000665
10 g	0.000462
5 g	0.000682
3 g	0.000684
2 g	0.000685
1 g	0.000986

NVLAP Code: 20/M12

Volume - Pipettes

Gravimetric method

<i>Test Volume in $\mu\text{l}^{note~4}$</i>	<i>Best Uncertainty (\pm) in $\mu\text{l}^{notes~1,3}$</i>	<i>Remarks</i>
0.1	0.027	
0.2	0.025	
0.5	0.025	
1.0	0.025	
2.5	0.020	
5.0	0.089	

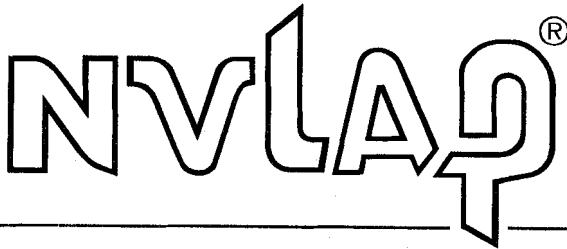
September 30, 2005

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HENRY TROEMNER, LLC

10	0.128
25	0.14
50	0.30
100	0.34
500	0.78
1000	1.38
2500	5.25
5000	5.98

Spectrophotometric method

<i>Test Volume in μl^{note4}</i>	<i>Best Uncertainty (\pm) in $\mu\text{l}^{notes 1,3}$</i>	<i>Remarks</i>
0.1	0.031	
0.2	0.026	
0.5	0.050	
1.0	0.078	
2.5	0.119	
5.0	0.251	

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HENRY TROEMNER, LLC

10	0.339
25	0.39
50	1.87
100	2.60
500	13.12
1000	16.76
2500	23.08

Density in the Range of 2.69 g/cm³ to 8.5 g/cm³

Mass Range	Best Uncertainty (\pm) ^{note 1}	Remarks
5 kg	0.0056 g/cm ³	
3 kg	0.0041 g/cm ³	
2 kg	0.0034 g/cm ³	
1 kg	0.0014 g/cm ³	
500 g	0.0064 g/cm ³	
300 g	0.0075 g/cm ³	
200 g	0.0053 g/cm ³	

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100 g	0.0031 g/cm ³
50 g	0.0030 g/cm ³
30 g	0.0067 g/cm ³
20 g	0.0029 g/cm ³
10 g	0.0065 g/cm ³
5 g	0.0170 g/cm ³
3 g	0.0148 g/cm ³
2 g	0.0127 g/cm ³
1 g	0.0156 g/cm ³

THERMODYNAMIC

NVLAP Code: 20/T02
Humidity Generation

Range in %	Best Uncertainty (\pm) in % ^{note 1}	Remarks
10 to 95	0.7	Relative Humidity

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HENRY TROEMNER, LLC

NVLAP Code: 20/T07
Digital Thermometry Indicators

Readout devices that actually measure resistance

Range	Best Uncertainty (\pm) ^{note 1}	Remarks
10 Ω	8 ppm	Resistance Function
25 Ω	2 ppm	Resistance Function
100 Ω	2 ppm	Resistance Function
300 Ω	2 ppm	Resistance Function
10000 Ω	10 ppm	Resistance Function
0 Ω to 400 Ω	8 ppm	Resistance Function
400 Ω to 10000 Ω	26 ppm	Resistance Function

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Digital Thermometer with PRT System

-196 °C	8 mk	Comparison Method
-40 °C to 0.0 °C	8 mk	Comparison Method
0.05 °C to 95 °C	8 mk	Comparison Method
90 °C to 156 °C	10 mk	Comparison Method
156 °C to 250 °C	16 mk	Comparison Method
250 °C to 420 °C	20 mk	Comparison Method
420 °C to 550 °C	21 mk	Comparison Method

NVLAP Code: 20/T07
Resistance Thermometry

Range in °C	Best Uncertainty (\pm) in mk ^{note 1}	Remarks
-196	8	Comparison Method
-40 to 0.0	8	Comparison Method
-0.5 to 95	8	Comparison Method
95 to 156	10	Comparison Method
156 to 250	16	Comparison Method
250 to 420	20	Comparison Method

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420 to 660	21	Comparison Method
-40 to 0	8	Thermistors
0 to 95	8	Thermistors
95 to 150	10	Thermistors

1. Represents expanded uncertainty using a coverage factor, $k=2$, at an approximate level of confidence of 95%.
2. Approximate value. Actual value determined by the test statistics.
3. Uncertainties at specified test volumes may be greater depending on the range of the unit under test.
4. It is recommended that adjustable volume pipettes not be used below 10% of capacity.

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